Mealtimes and Dementia

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Introduction

As people with dementia’s illness progresses a variety of behavioural changes occur, one of which may be a change in eating habits. The reasons for this are not always clear and the complex nature of the eating process makes it difficult to ascertain. Eating involves motor skills, planning, and social skills thus functional loss in any one area can have a profound impact on the eating process.

As a result of evidence of weight loss in people with dementia a number of studies have been carried out to determine the extent of changes in eating ability and mealtime behaviours.

A study of the eating habits of 33 patients with dementia aimed to describe the changes in eating habits that occur in Alzheimer’s disease and multi-infarct dementia. Using a semi-structured interview conducted with informants they assessed changes in eating and found the most common to be a decrease in intake and a decrease in weight. They also found changes in the physical act of eating e.g. using normal utensils abnormally, using abnormal utensils or using the hands inappropriately.

Further studies found that 47% of 240 nursing home residents were dependent on the nursing home staff for eating with 67% of these requiring physical assistance and that frequently assistance offered failed to match needs. Problems were identified and these were classified according to the staff level at which an effective intervention might be made with emphasis on the importance of psychological aspects of the patients’ environment.

It is obviously necessary to be able to assess the extent of any eating problems in order to identify an appropriate intervention and assess its effectiveness. This should be done on an individualised basis and this and related issues are well documented by Watson (1993).

The consequences of the changes in eating habits are varied. Weight loss and malnutrition have been identified in research studies although whether this is due to decreased food intake, increased energy expenditure or other reasons is not clear. Overeating is reported to occur in an estimated one quarter of people with Alzheimer’s disease. Management problems may thus result for caregivers who are faced with the practical problem of how to ensure adequate food intake.

The Lothian Regional Council Social Work Department describes a number of categories of abuse of which physical abuse is one and included in this is “...giving medication or food forcibly...”. On the other hand, ‘neglect’ involves failing to fulfil a person’s basic needs “...such as for food, sleep, clothing ...”. Whilst these are used with professional judgement they nevertheless highlight the emotive nature of eating and feeding difficulties.

There is a growing awareness of the effect of the environment on our lives. A person’s environment can affect behaviour in several ways; by providing, or not providing, necessary resources; by making certain behaviours easier or harder to carry out thus altering the probability of such behaviours occurring; by indicating which behaviours may be expected; by creating a particular mood or atmosphere and by increasing or decreasing risks. People with dementia’s cognitive deficits make them more reliant on the environment for information.
A number of design principles have become generally well recognised and accepted\textsuperscript{10,11}. In design principles the focus tends to be on the physical environment but there is evidence that the social environment is at least as important. It is often difficult to separate the impact of the physical environment from that of the social environment or regime. In this study the term ‘environment’ will be used to consider both the social environment and regime, and the physical environment which includes sensory and spatial properties, lighting, sound, smell, temperature etc.

Given the importance of mealtimes both as a social and functional activity it is perhaps surprising that there has been relatively little research aimed at establishing the factors which maintain or improve a person’s ability to eat. In particular the study of environmental effects on mealtimes is not well documented with more information concerned with methods of improving nutritional status through other means, for example, diet supplements.

This literature review aims to document the current research evidence regarding environmental effects, both physical and social, on eating behaviour. Although studies have been reviewed under headings there is considerable overlap, for example, introducing activity programmes involving food and eating involves changes in ward routines and staff attitudes will always be of great importance.

**Social aspects of mealtimes**

Mealtimes are generally an opportunity for socialisation, a pleasurable part of the day, or may be a treat for example when eating out. For people with dementia and their carers it can instead become a time of conflict and struggle. The main aim becomes getting the person to eat their food and the social aspects may be neglected.

Common problems associated with the dining experience for the elderly are described by Beck\textsuperscript{12} and include the environment in which the residents eat and their socialisation patterns at mealtimes. She proposes that an environmental intervention strategy could be successful with eating behaviours that have proved resistant to change and gives examples of eating outdoors to create a picnic atmosphere, eating out in restaurants and paying attention to the dining room seating. She suggests that socialising at mealtimes helps residents to keep in contact with each other and with reality and cites a study\textsuperscript{13} where it is demonstrated that “increased social participation stimulates interest in eating, thus improving the quality of the diet”. Social participation can be improved through environmental manipulation, for instance, seating arrangements. Tables of four to six people facilitate optimum communication with round tables stimulating less communication than square\textsuperscript{12}. However details of the research evidence for this are not provided.

Bonnel\textsuperscript{14} asked in her study “What are the observed experiences and the shared perceptions of residents eating within the nursing home group dining activity?” Using interviews and observations she viewed mealtimes as analogous to work and developed a model, ‘Managing the Work of Eating’. This categorised four challenges facing people in the dining room as: negotiating the environment, coping with frailty, dealing with colleagues and responding to the system. Implications of this model are that each challenge should be addressed, for example, by providing adequate physical space in order to promote independent movement and eating.
A literature review of mealtimes of the institutionalised elderly\textsuperscript{15} aimed to examine various factors that influence the nutritional intake of the elderly and found these to be physical and perceptual disability, social support systems and the opportunity to socialise, and cultural influences.

They found that intervention programmes fell within three general categories: therapeutic approaches, alteration of physical environment, and behaviour modification using operant conditioning. They emphasised the importance of mealtimes for nutritional and social reasons and their view is that maintenance of self-feeding should be the “primary goal of all who care for the elderly” and that this may involve modification of the mealtime environment. The aim then is to increase independence in eating and feeding and improve the overall quality of the mealtime experience.

In their review they found that previous research suggested that socialising at mealtimes helps keep residents in contact with others and with reality. Anecdotal and research reports suggest that “social participation stimulates interest in eating, thus improving the quality of the diet”\textsuperscript{16,17}.

They also point out the importance of eating as a social activity and cite studies where it was found that caregivers often failed to perceive that “it is not what the older person eats, but with whom they eat, that will be the deciding factor”\textsuperscript{12,18}.

Van Ort and Phillips\textsuperscript{19} noted that studies of interventions suggested that there was a range of interventions which could be used to improve the mealtime experience and promote functional feeding and that these were “all rooted in the dynamics between an individual nurse and an individual resident during a specific self-care activity”. They went on to carry out a descriptive study and found that the environmental context of feeding had “few discernible or predictable patterns”. The environment was chaotic and few attempts were made to focus activity directly on the feeding experience.

They categorised examples of eliciting behaviours, sustaining behaviours and extinguishing behaviours for both feeder and resident. Examples of feeder and resident extinguishing behaviours are: failing to respond to resident cues; interrupting feeding multiple times; aborting to feed other residents; removing food tray (feeder) and spitting out food; refusing to open mouth; using hand to block offered spoon (resident). Examples of eliciting and sustaining behaviours are: calling the resident’s name, talking to the resident and reorienting the resident to their meal. They suggested that a logical intervention would be to decrease the environmental chaos and for staff to view mealtimes as an important event for residents rather than a task to be completed as quickly as possible.

Ott et al’s\textsuperscript{15} literature review concludes that there is shortage of documented evidence validating occupational therapy approaches to eating and feeding problems. They identify the need for empirical studies of the mealtime behaviours of elderly people living in institutions and the necessity for evaluations of the effectiveness of interventions.
Summary

Mealtimes are an important part of most people’s day and often provide an opportunity for social contact. There is evidence that increased social activity results in increased eating behaviour and it may be that the social environment is as important as the actual food being eaten. Thus, any environmental manipulation, whether physical or social, which stimulates socialisation, is desirable. Those involved with mealtimes should be aware of the socialisation patterns of the individuals and endeavour to be receptive to cues, using eating eliciting and sustaining behaviours where possible.

Eating as an activity

Often people caring for someone with dementia have difficulty finding appropriate activities in which the person can participate and enjoy, whether in the home or in a residential setting. A survey of day centres found that the most successful activities were those that took advantage of old skills, of which skills of daily living are obvious ones. Cooking and related activities are well learned skills and something most people have some experience of. Mealtimes are also a fundamental part of everyday life therefore it makes sense to use these to increase activity levels and maintain skills.

In Australia a number of examples of good practice have been identified where eating and activities surrounding mealtimes have been used to maintain skills. The CADE units of New South Wales are small and homely and provide most domestic facilities, for example, kitchen, lounge, laundry etc. There is total visual access so that residents can see the kitchen. All food is prepared and cooked in the unity thus food can be smelled by residents. Residents are encouraged to take part in simple household chores with the help of staff or family friends. They also have the use of a small kitchen which can be used to make tea or coffee for visitors. The effects of living in these units was evaluated over the first 15 months of living in the CADE unit and significant improvements were found, particularly on social, behaviour and confusion scores.

Archibald stresses the value of food as an activity and gives a number of examples of how this can be used. Mealtimes involve a whole range of activities which require varying levels of ability, for example, menu planning, table setting, helping prepare meals, reading out the menu, shopping for food, putting things away, doing dishes and so on. Involvement in the cooking process can be at a very simple level, for instance, stirring the pan or reading the recipe out, while still being meaningful for the person involved. Cold cooking is also a safe way of letting people cook and again can be adapted to the individual.

She also proposes that mealtimes can be a number of things including an opportunity to enjoy nice food, a chance to relax and a social event. Alternatively it can be seen as a chore that has to be done, or something to get over as quickly as possible or a ‘refuelling stop’: “Do I feed them - or do I help them enjoy their meals?”
Other examples of the use of mealtime activities from Australia are in Aged Cottage Homes where residents are involved with chopping vegetables, meal preparations, setting the table and doing dishes. Other homes have used dining rooms for family meal celebrations. The meals are prepared in the unit with people going out shopping to buy food and helping with the preparation. In one home the main meal is served at night as they have found people are more settled and sleep better with a full stomach.

An investigation of the therapeutic use of mealtimes was carried out on a ward for older people with dementia. The authors felt that nurses were “at risk of missing the valuable opportunity for developing and maintaining therapeutic relationships at mealtimes”, that mealtimes should be seen as important as any counselling session or group work, and thought these were some of the more rigid regimes that still persisted despite less task-centred care in other areas. They used observation and questionnaires to obtain information about patients’ choices and meal times, the environment, interaction between patients and nurses and the general atmosphere. One questionnaire was for use with staff and the other for patients.

Their observations identified a lack of choice over where to sit, what to drink and who should pour drinks, whether or not to use condiments and the size of portions. The majority of staff indicated that “it was desirable and possible to offer patients more choice” although at times this may involve some risk taking. All thought that mealtimes could be used to develop and maintain therapeutic relationships but only 11% thought this was a feature of care at the time of the study.

Occupational Therapists are frequently involved in the planning of therapeutic activities and a study of activities in a day hospital for people with dementia was carried out in Sweden. Scheduled activities were observed, which included baking and setting tables, newspaper reading groups, bingo etc. and it was found that staff did not consistently use activities that stimulated the most participation, but instead, those that required less participation from patients and staff. Most activities were adapted for “reasons of crowd control rather than activity stimulation”. An example of this was patients not being allowed to clear their plates from the table after the meal as it was feared that too many people moving around might create anxiety or chaos. Hasselkus commented that this raises important questions about the role of the environment versus the disease itself in promoting the passive behaviour of patients.

The study concentrated observations on four patients and found that none engaged in spontaneous action “outside the invitations of staff members or the routine”. However, a different level of initiative was found when the same people were visited in their homes. One lady offered coffee and “when she made the coffee, she didn’t ask for help and showed no expectation that we should help her. She set the table with her best china coffee cups and apologised for not having cake to offer”. Another lady also offered coffee.

It was concluded that contrary to the goal of stimulating activity, this day hospital program often limited or discouraged activity. Patients’ perceptions of their role as ‘patients’ lead to more passive behaviour. Although staff saw providing stimulating activity as their responsibility, their goal often conflicted with the perceived need to maintain order which was motivated both by a concern for safety, and, order on the unit.
This was also highlighted in a study of visibility of food which will be described more fully later\textsuperscript{27}. It was found that staff provided snacks five times more than they were requested and it was suggested that this may hamper independence by negating remaining abilities. This was also seen as support for Beck’s theory\textsuperscript{11} that excess disability is fostered by too much care giving. These residents had not lost weight since admission and it may be that this is an indication that they aren’t hungry and therefore don’t need the snacks.

Bowlby\textsuperscript{28} describes dining and eating programmes for the cognitively impaired who have difficulty relating to their surroundings. These programmes include sensory stimulation and the preparation of biscuits. Also, invitations to a ‘special luncheon’ which individuals can be involved in by preparing their meals as a group with tasks divided according to skills.

Recently a 12 point Bill of Rights for people with Alzheimer’s Disease was proposed\textsuperscript{29}. One point was “to live in a safe, structured and predictable environment” and another, “to enjoy meaningful activities to fill each day”. Activities “should stimulate the senses with colors, music and the tastes of healthy foods...”.

Another view expressed is that of eating as an activity and as a “barometer of well-being”\textsuperscript{30}. Following this a number of suggestions of ways to improve the mealtime environment are made, for example, morning coffee clubs, parties and social activities which build on the social skills that usually continue throughout life, for instance, setting tables, serving food and drink, and clearing up afterwards.

A review of the effectiveness of Reality Orientation (RO)\textsuperscript{31} lead to the proposal that as RO is a teaching/learning intervention then optimal learning should involve “an experiential and meaningful medium”. Thus, rather than a card saying when the next meal is, there should be the smell and sound of food cooking, people being involved, for instance, mixing biscuit dough and washing hands. Being in a home-like dining room communicates the fact that it is lunch time in a much more meaningful way and activities also serve to encourage verbal orientation, socialisation and appropriate eating behaviours\textsuperscript{32}.  

\begin{center}
\textbf{Summary}
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Research has shown that well learned skills are participated in with the most success and as cooking and related mealtime activities are typically well learned these are obvious sources of activity. Involving people at all stages of the food process allows their remaining skills to be maintained and also increases activity levels and provides sensory stimulation resulting in increased food intake. Mealtimes are often very task orientated and busy times for staff. However recognition of the therapeutic value of the mealtime experience would allow more time to be allocated to this important part of the day.
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Sensory stimulation

There are smells which evoke certain memories, both good and bad, and may promote or prevent certain behaviours. Sensory changes associated with the ageing process include “... a decline in visual functioning and a decrease in olfactory sensation” which “limit the stimulation provided by the food’s colour, smell, taste and consequently decrease the aesthetic appeal of the meal”\textsuperscript{33}. Frequently, suggestions for an optimum mealtime sensory environment suggest low noise levels\textsuperscript{34}, appetising aromas\textsuperscript{20}, adequate lighting\textsuperscript{35}, stimulating food tastes, appetising presentation of food, providing one course at a time\textsuperscript{29}, visual contrasts between cutlery, foodstuffs and plates\textsuperscript{36}, plate and table\textsuperscript{34} etc. Related to this is the importance of dental care. Many of these suggestions have a ‘common sense’ logic to them but not all have been adequately evaluated.

‘Stimulation without stress’ is an important issue in the care environment\textsuperscript{35}. “The best environment should offer sufficient stimuli so that even the patient with sensory limitations becomes more sensitive to his external environment”\textsuperscript{33}. It has also been suggested that when the level of stimulation is too much or too little, or too difficult to comprehend, behaviour becomes disorganised\textsuperscript{37}. “The activity prior to the meal often sets the mood and therefore should be stress free and quieting. For example, stimulating exercise or dancing can make it more difficult for the resident to quiet down and focus on a meal”.\textsuperscript{26}

Finding optimal levels of sensory stimulation has been the focus of much research but the individual nature of this makes studies difficult. Some studies have looked at effects on general behaviour with few specifically examining the effects of sensory stimulation on mealtimes. Studies examining the effects of changes on ward routines have also manipulated sensory stimuli and will be considered further.

One study assessed the effect of multisensory techniques on self-feeding in a sample of institutionalised elderly people, some of whom had dementia or some degree of confusion\textsuperscript{38}. A group of six took part in an Occupational Therapy intervention group. The group met daily for 45 minutes in the dining room. The group used tactile, auditory, visual, proprioceptive, olfactory and vestibular stimulation. A matched group took part in an activity group which was part of a programme which had been functioning prior to the sensory stimulation group being initiated. This group met daily or twice daily for sessions of 45-90 minutes and activities included newspaper reading, movies, exercises, bingo, cooking and live music. Both groups continued for eight weeks.

Pre and post group measurements were taken and it was found that five out of six participants in the experimental group made gains in overall feeding independence whereas only one in the activity group did. As would be expected there were individual differences in responses to different sensory stimulations.

Another study investigated the effects of sensory training\textsuperscript{39}. The authors were looking for an alternative to reality orientation as a therapeutic approach due to the lack of empirical support for its effectiveness. They saw the primary goal of sensory training being to bring the regressed person back in touch with the environment. The rationale behind this being that if cognitive dysfunction is partly a result of sensory deprivation, then by increasing sensory stimulation dysfunction will be reduced.
They describe the case of a 90 year old lady called ‘Maude’. She had senile dementia and other physical health problems. She was totally dependent for all feeding, dressing and grooming and had lost 50 pounds and so was being force-fed. Most of her time was spent sitting with her eyes closed. The sensory training she received consisted of 45 minute sessions for a period of five weeks. Treatment, although individual, was carried out in a group setting and focused on stimulating visual, auditory, olfactory, gustatory, tactile and proprioceptive senses. Sessions involved leader welcoming, touching hand and seeking eye contact. They then carried out ten core activities which included looking at a bell, ringing bell, smelling an item, eating an item, blowing, clapping or stamping feet to music, tasting a sweet food, catching a ball, throwing ball, moving arms, knees and chin. Other activities were periodically introduced, for instance, playing with a dog, washing hands with scented soap etc. All in the group benefited but Maude was found to make the most gains. She was observed to make gains in orientation, attention, concentration, self-feeding, mobility, communication and ability to co-operate with care giving. She became ‘meaningfully talkative’ when a dog was introduced to the group. During the forth week she began to feed herself finger food at mealtimes and in week five wheeled herself to the dining area and helped herself to an apple. The gains were sustained over a one year follow-up period.

It was concluded that the ill and frail elderly have a decreased capacity to respond to environmental stimuli because of disease and age related changes in sensory, perceptual, and information processing mechanisms. In institutions they may be further deprived because of constant exposure to bland and monotonous environments, immobility and inactivity. They emphasised the need to identify specific behaviours where change was likely to occur and to develop procedures for measuring change.

In contrast a study evaluating the effects of a ‘Reduced Stimulation Unit’ on patients who had been steadily losing weight hypothesised that this was a result of high levels of activity and noise in the large dining area, asserting that there was little empirical support for recommendations of sensory stimulation.40

The unit was a 16 bed unit designed to reduce the level of stimulation and minimise reliance on memory. It had small tables for eating, used neutral colours, and there were no potential sources of stimulation from TVs, radios or telephones. Patients were free to go anywhere and eat whenever they wanted. Staff behaviour was also changed by controlling access to unit. Staff and visitors were encouraged to touch patients, maintain eye contact, speak slowly and softly, and to allow patients to make choices within appropriate options.

Measures were taken over a three month period since the opening of this unit and all patients had increases in weight with only two not reaching the ‘normal weight range’. On the Haycox Dementia Behavior Scale they showed a significant increase but not on the Geriatric Behaviour Scale which focuses more on mental and emotional characteristics. They also found more interaction between patients and staff.

The main difficulty with interpretation of this study is that it is not clear that the changes were due to the reduced sensory stimulation rather than the change in milieu. A controlled study would be necessary to ascertain this.
Hall describes a new low stimulus unit which they set up for people with Alzheimer’s Disease. Meals were previously held in a group dining room and now there was a dining table in every second resident’s room. She says there was increased intake and acceptable socialisation levels although no empirical data is provided. Only one out of the 12 residents continued to lose weight, and residents were observed to socialise and sit throughout mealtime and finish eating food on their trays.

An investigation of the effect of mealtime disturbances on ‘plate waste’ in a general medical ward was carried out based on the hypothesis that mealtimes should be times of peace and quiet with no visitors. They collected data on movement in and out of patients’ rooms and found a high level of disturbances. There was a significant correlation between plate waste and the number of movements of others but they did not find a relationship between disturbances and appetite, which did not appear to be affected. This study requires replication with people with dementia however, as their diminished sensory capacity may make them more, or less, susceptible to disturbances.

The use of touch as a therapeutic tool has been studied in a number of client groups and evaluated. The effects of touch on nutritional intake with people with chronic organic brain syndrome who are confused and disorientated was evaluated in this study. They monitored food intake over three weeks for two groups of patients, the experimental group and the control group. The first week provided a baseline measure of food intake. The second week was the treatment week and the third was the post-treatment week. During the treatment week the experimental group were verbally encouraged to eat and touched gently on the forearm. The control group received only verbal encouragement.

Caloric and protein intakes were measured over the three week period. At baseline there was no difference between the experimental and control groups but in weeks two and three nutritional intake was significantly higher for the experimental group. They concluded that tactile stimulation can increase the amount of food eaten by people with Chronic Organic Brain Syndrome (COBS) and that this is a “safe, caring and inexpensive intervention”.

Visibility of food in an Alzheimer’s disease unit was manipulated in an attempt to increase food consumption. Nutritious snacks and drinks were made available to residents in portable refrigerators and then in glass door fridges. Little difference was found in use between fridge types or in the overall use of either. It was found that staff provided snacks five times more than they were requested and it was suggested that this may hamper independence by negating remaining abilities.
Summary

Evidence exists to indicate that sensory stimulation can have a profound effect on eating ability and food intake. The evidence suggests that sensory training, whether in a group or individual format, can lead to increased food intake. Apparently contradictory evidence regarding the most appropriate level of stimulation implies the need to conduct individual assessments; however it is generally accepted that background noise levels should be low, thus allowing an opportunity for socialisation and the minimum distraction. It appears that cues used to trigger appropriate behaviours can be effective, for example, setting the table and using a tablecloth so that the table can be identified as somewhere eating takes place, but further, more specific studies need to be carried out to provide evidence of this and to determine how people at different stages of the disease are affected.

Changing ward routines

Studies investigating the effects of different ward routines have come from various sources including the elderly in geriatric hospitals, wards for people with dementia, medical wards43 and institutions for the mentally handicapped44. They have also covered a broad range of factors which are thought to be of importance, for example, seating arrangements, flexible mealtimes, choice/availability of foodstuffs, visual cues, sensory stimulation etc. When the changes are considered in more detail it can be seen that most are consistent with the principle of living in an environment that is as far as possible a domestic one and of providing cues to stimulate appropriate behaviour.

A number of studies have been carried out where changes have been made to one ward, or group, and not to the other45,46,47.

The first is a study where patients were randomly assigned to one of two groups. Changes were made to the ‘milieu conditions’ for one of the groups and significant improvements were seen in the patients’ communication, eating behaviour and activity levels.

The second study evaluated the effects of changes in ward routines on communication and appropriate eating using a multiple baseline design with an experimental group and a control group. The control group received their coffee in their chairs in the corridor, as was the usual procedure whilst the experimental group went to small tables in a special coffee room where residents helped themselves to coffee, sugar, cups, saucers etc. The second stage involved changing mealtime routines. Breakfast was made available between 8 and 10.00am, lunch between 12 and 1.00pm, and dinner between 4 and 5.00pm. Again patients were grouped around small tables with serving dishes, salt, pepper, milk etc to which they could help themselves. The control group received their meals on trays.
They found that the experimental group showed a significant increase in the number of contacts between patients and staff, and also in ‘eating properly’. The control group showed no change on either measures. Although it was table manners that were improved, and not necessarily intake or nutritional status, this was an important demonstration that ‘problem behaviour’ was not due to the degenerative process of dementia but was affected by the social setting in which the person lived.

The third of these studies observed mealtimes in two wards of the same hospital. In one ward patients were seated around tables with trolleys kept in the corridor to reduce noise. In the other patients sat in rows and meals were served from large heated trolleys with other trolleys used to dispense cutlery. In the second ward social interaction was found to be twice as great.

The intervention stage of this study aimed to increase the social interaction on the first ward and to increase choice over the way the meal was served. Tables were introduced set with cloths, water jugs etc and trolleys were removed to reduce noise levels. They found an increase in the total number of social interactions by both staff and patients and they observed that patients started to help each other, for instance, by passing utensils and cutting meat for others.

A ‘flexible meal time’ programme in a nursing home in South Australia was introduced for residents who had lost weight and shown disinterest at mealtimes. Their individual food preferences and eating patterns were monitored prior to implementing individual mealtimes. Records of diet and weight showed that all residents gained weight and for some there was evidence of improved behaviour, increased social interaction and, on retesting, for some there was a decrease in mood swings, anxiety and restlessness.

The use of finger food is often advocated as a means of allowing people to remain independent at mealtimes and this has been shown to be effective with people who had limited use of eating utensils, refused to accept assistance with feeding, and had poor intake and weight loss. A finger food menu was introduced and the effects of this on nutritional status and independent feeding skills was examined. They found that all residents became more independent with their feeding skills and weight loss was arrested for ten out of the twelve. Their percentage meal intake increased and for some dietary supplements were decreased. The conclusion was that the implementation of a finger food menu restored dignity by allowing independence at mealtimes.

Van Biervliet et al introduced ‘family style’ meals for five young mentally handicapped men. The rationale behind this is that “institutional practices have traditionally been quite dissimilar from the manner in which people have their meals at home”, for example, they do not conform to the principle of a domestic environment. They found that participants spoke “substantially more often than during institutional style meals” and spent more time with their meals but it was not clear if this increased food intake. This system was also preferred by participants and staff.

Modification of the menu pattern, menu variety and nutritional content of mealtimes for residents in a geriatric hospital was carried out by altering the meal pattern. This was achieved by “lightening breakfast, offering a light and heavier meal choice for lunch and broadening the choice at tea”. The aim was to encourage patients to space their food intake and to have choice in the way they did this.
They concluded that there needed to be active support for change from all medical, nursing and catering staff. They found that virtually any item was accepted with some degree of success when implemented carefully and with good presentation. They also dispelled myths that elderly people did not enjoy spicy or foreign foods. Overall staff became more sensitive to the quality of the food service provided.

Other studies have examined the effect of changes in the mealtime environment on verbal communication. One study investigated the importance of the staffs’ influence on social interaction and mealtime behaviour. They considered it important to select a homogenous group of patients and as such specified dementia of the Alzheimer type. A special dining room was prepared with the aim of making this less complex and more home-like. They also wanted to increase the demands made on patients in order to achieve more independent eating behaviour. The dining room had a table cloth, flowers, china, cutlery and napkins and provided food in bowls from which patients could help themselves. The new routine was introduced gradually and involved five days where staff were told to offer help when the patients needed it and five days when the patients ate alone. The next three days were spent with two nurses participating in mealtimes but dressed in civil clothes followed by two days when they were present and dressed in uniforms. They were told not to initiate conversation or to offer help unless they were asked for it.

It was found that three out of five patients had difficulty putting together a complete meal but all could recognise and serve themselves from the main dish during 74-100% of the meals. When staff were not present the two least demented patients became ‘caregivers’ and helped the three most demented to eat but the nature of the group interaction changed. Patients’ meals became more complete when staff were present and this was thought to be due to staff awareness of patients’ nutritional needs rather than the social and cultural needs at mealtimes.

A further study observed residents in three different ‘skilled nursing facilities’ (SNF) in the USA. They assessed the degree of independence in self-feeding for each SNF and correlated this with a list of factors related to the dining environment which are thought to have a positive influence on independence in feeding. It was found that the SNF with the greatest percentage of independence and least percentage of dependence had the highest number of positive dining environment factors. In the SNF with least dependence in self-feeding residents were encouraged to accomplish as much of the feeding by themselves as they could manage and those with co-ordination problems were able to eat at their own pace and finger feed.

They also found that there appeared to be little attention to the relationship between feeding and posture. They concluded that staff involved with mealtimes should be educated about physical and environmental considerations in order to create a mealtime environment which supports independence.
Davies & Snaith\(^3\) categorised problems identified during lunch time observations according to the staff level at which effective intervention might be made. These varied from nursing auxiliary to national nursing policy.

Backstrom et al\(^{17}\) assessed feeding difficulties in long-stay patients at nursing homes and suggested that a patient assignment system for nurses could improve the eating ability of patients.

A further study investigating interaction between staff and patients observed that when staff sat with patients, the conversation flowed easily\(^{24}\). Staff were not aware of their role as facilitators although after-dinner socialisation went on for up to half an hour on occasions with a wide range of topics discussed. The patient questionnaire indicated that 86\% of patients would enjoy the company of nurses at mealtimes but observation revealed that when staff sat down without eating, patients offered them food or drink and appeared rejected when staff turned this down. Thus, it would be preferable for staff to eat and drink with patients in order to enhance interaction and provide patients with an appropriate role model. They conclude that by “realising the full potential of mealtimes we can enhance patients’ dignity, self esteem and self worth”.

Staff attitudes are obviously very important as this will affect how they react to individuals with dementia and in their organisation of routines and priorities. If staff do not view mealtimes as important, not only in terms of nutritional intake, then this is likely to affect their views of patient independence at mealtimes and correspondingly, their behaviour.

As one part of a study staff were surveyed about their opinions of mealtime arrangements. In this case it was found that staff were satisfied by the physical aspects of the dining room but criticised the food. Eight out of thirteen thought that patients should feed themselves if at all possible and five thought messy eaters should be fed\(^3\).

**Summary**

Any environmental manipulation involves a change in ward routine to some extent and there is evidence that relatively minor changes in routines have a profound effect on both socialisation and eating ability, for example, changes in the timing of meals, the introduction of finger food and altering table sizes. Staff attitudes are obviously very important as this will affect their interactions and their organisation of routines and priorities. If staff do not view mealtimes as important, not only in terms of nutritional intake, then this is likely to affect their views of patient independence at mealtimes and correspondingly, their behaviour. The effects of staff interaction with patients has also been demonstrated to be of great importance in the promotion of social interaction and through the provision of a role model.
Skills training

When people with dementia cease to be able to do things they were previously capable of it is usually attributed to progression of the disease. This is not always the case and it may be that the physical environment is impeding the maintenance of skills. Eating is a complex process, requiring a number of different skills and this allows many access points for intervention. The following studies have all examined ways of maintaining or improving eating skills.

Borell et al\textsuperscript{53} studied the relationship between cognition and task performance in dementia. They provided support for the “notion that patients who have lost the ability to use common objects, such as a toothbrush or comb, have the most complex cognitive loss”. They found, however, that the ability to use a spoon or fork in feeding themselves was independent of the degree of dementia. This has implications for help and support and also for interventions, for example, skills training.

Josephsson et al\textsuperscript{54} comment that despite attempts to enhance cognitive functions, for example, memory, training-related gains have been small or non-existent. They used an intervention to ‘support occupation’ rather than to improve the underlying cognitive abilities. The activities chosen were activities of daily living (prepare soft drink, brew and serve coffee, set table for coffee) and the aim of the programs was to make performance more reliant on procedural motor skills. This was done by adapting the environment (removing distractors, using signs and modelling) and by adjusting the OT’s approach with the use of verbal prompts and physical guidance. Training took place over nine 5-20 minute sessions. They found some gains in three of the four patients and these were paralleled by a decrease in the amount of support required to carry out tasks. Again this provides evidence that skills can be enhanced with appropriate interventions.

A study which compared skills training with different approaches, for instance, a traditional stimulation approach using adult games, music and conversation and a control group receiving regular care found that the greatest improvement was in the skills training group. The stimulation group maintained their pretest functioning level and a decline was found in the control group. They used performance testing of activities of daily living (ADLs) using props such as spoons, cups etc. and tasks such as taking a sip of water\textsuperscript{55}.

Coyne\textsuperscript{56} used a scale to measure the level of eating independence in people living in nursing homes, with a diagnosis of dementia, with severe cognitive impairment, and who independently ate half of their meals. Subjects were randomly assigned to either the experimental group, which received directed verbal prompts (DVP) and positive reinforcement (PR) of verbal praise, and, a control group who did not receive this. It was found that during treatment the experimental group demonstrated a daily improvement in their level of eating independence which remained one week post treatment. This was interpreted as evidence that eating skills may be reacquired through behavioural interventions and concluded that a diagnosis of dementia does not preclude this.

Baltes & Zerbe\textsuperscript{57} viewed behaviours as often being the result of “environmental deprivation leading to intellectual, social and emotional understimulation”. They hypothesised that by changing the environment to provide non-reinforcement for non-self feeding this should result in a change in self-feeding behaviour. Following this they tried to teach a 67 year old lady to reacquire and maintain
self feeding skills. The treatment phase of the study involved stimulus control (change of environment from dining-room to bedroom), prompting, using verbal instruction), immediate reinforcement procedures (drinking juice), tangible reinforcers (music, flowers) and a modified time-out procedure. When the patient was given her tray of food she was told “...here is your spoon and fork. I want you to eat your cereal. Every time you eat a spoonful of cereal, you can have a drink of juice (milk, coffee)”. If the instructions were not followed after two repetitions a shaping procedure was introduced with six steps, for example: step 1) involved “investigator’s hand over subject’s hand, scooping up food on spoon and bringing up to subject’s mouth. Release of subject’s hand after subject takes a bite”. This gradually decreased to step 6) “investigator instructs”. The lady in this experiment died prior to the study being completed but results during the treatment phase indicated an increase in self-feeding behaviours from “near-zero to between four and 25”. The implications for nursing resulting from this study was that it showed nonfeeding was an ‘operant’ which could be changed into self-feeding, depending on environmental contingencies.

Other studies have investigated strategies for reducing eating dependency in nursing home patients. In this study subjects were three female patients, over age 85, with severe cognitive impairment and multiple medical problems. Two subjects received strategies of prompting and social reinforcement and for the third person, who still ate independently, two strategies were used. These were rearrangement of the physical environment to compensate for visual impairments and providing preferred foods. The interventions were successful with two of the three subjects.

The prompting and reinforcement intervention increased eating and drinking in one of the two subjects although there was no significant difference in food intake. A 33% increase in food intake was found when preferred foods were offered and compensation made for visual impairment.

Patients’ behaviours during mealtimes were shaped using staff praise and attention for independent behaviours. Factors considered in this study were alterations in consistency of diet, amount of energy patients spent feeding themselves and time required to complete their meal. The methodology is criticised by Ott et al but the study claimed to have reduced the number of patients requiring feeding by nurses from 39 to 19 in a nine month period.

A further study successfully used the operant model to improve healthy eating behaviours in six elderly patients. Reinforcers for eating the evening meal ‘correctly’ were, for example, uninterrupted interaction with a staff member, privilege to retire immediately after an evening meal, or an extra dessert. This demonstrated the use of an environmental intervention strategy but is not clear whether these patients had cognitive deficits.
Conclusions

It has long been recognised that the physical and social environment in which people operate has an effect on their behaviour and this literature review attempts to document those studies which have specifically addressed the mealtime environment and issues related to eating.

It is clear that for everybody mealtimes are a significant part of the day. While the progress of dementia involves a gradual decline in abilities the research evidence demonstrates the effects that the environment can have on these abilities. Some environments promote skill maintenance whereas others result in dependence and the premature loss of skills.

Changes demonstrated include increases in responsiveness, ‘feeding independence’, nutritional intake, and weight maintenance. A number of studies have documented increased socialisation patterns both between staff and patients and between patients themselves.

Staff attitudes are obviously of great importance and although ward staff frequently talk about the importance of promoting and maintaining independence, they are often operating in an environment which has the opposite effect. It is vital that further studies are carried out to increase awareness of the issues and to determine the most effective interventions. The studies that exist date back to the 1970’s but cover few areas and tend to be on a small scale with few using control groups. There is also a tendency to make multiple changes and it would be useful to know the individual aspects of an intervention which produce significant change.

Summary

Whilst it is clear that the progression of the illness leads to decreased ability in a range of domains there is also clear evidence that environmental factors affect a person’s ability to maintain or reacquire self-feeding behaviours. Frequently people are operating in environments where they are deskilled thus the use of appropriately designed skills training activities can be used to preserve skills for as long as possible.
References

6. Carver A (1994) Improving Nutritional Intake  In *Food and Nutrition in the Care of People with Dementia* Stirling: Dementia Services Development Centre
7. Keene J (1994) Feeding as a Behavioural Problem in *Food and Nutrition in the Care of People with Dementia* Stirling: Dementia Services Development Centre
13. Clancy K (1975) Preliminary observations on media use and food habits of the elderly  *Gerontologist* 15(6), 529-532
18. Weinberg J (1972) Psychologic implications of nutritional needs of the elderly  *Journal of the American Dietetic Association* 60(4), 293-96
21. Archibald C (1994) Food as an Activity  In *Food and Nutrition in the Care of People with Dementia* Stirling: Dementia Services Development Centre
22 Archibald C (1992) An Australian Experience Stirling: Dementia Services Development Centre
23 Darbyshire P (1987) Mealtimes - or refuelling stops? Nursing Times 83(33), 39
24 Littlewood S & Saeidi S (1994) Therapeutic mealtimes Elderly Care 6(6), 20-21
34 Hall GR (1994) Chronic Dementia: Challenges in Feeding a Patient Journal of Gerontological Nursing April 21-30
35 Kelly M (1992) Designing for People with Dementia in the Context of the Building Standards Stirling: Dementia Services Development Centre


Melin L & Gotestam KG (1981) The effects of rearranging ward routines on communication and eating behaviors of psychogeriatric patients *Journal of Applied Behavior Analysis* 14, 47-51

Davies ADM & Snaith PA (1980) The social behaviour of geriatric patients at mealtimes: an observational and an intervention study *Age and Ageing* 9, 93-99

Reynolds B (1993) Use of Flexible Meal Times for Nursing Home Residents with Eating Disabilities or Behaviour Patterns that Limit Dietary Intake *Geriaction* 6

Jean LA & Roy RM (1994) Restoring dignity to dining: Implementation of a finger food menu *JADA Supplement* 94(9), 4-29

 Hunwick H & McDonald FD (1983) Altering meal patterns and food habits in geriatric institutions *Journal of Food and Nutrition* 40(4), 180-185


 Tappen RM (1994) The effect of skill training on functional abilities of nursing home residents with dementia *Research in Nursing and Health* 17(3), 159-65

Coyne ML (1988) *The effect of directed verbal prompts and positive reinforcement on the level of eating independence of elderly nursing home clients with dementia* The Catholic University of America D.N.S.C. 161

Baltes MM & Zerbe MB (1976) Re-establishing Self-Feeding in a Nursing Home Resident *Nursing Research* 25(1), 24-26


Manning AM & Means JJ (1975) A self-feeding program for geriatric patients in a skilled nursing facility *Journal of the American Dietetic Association* 66, 275-276